

Notice of Allowability

Application No.

10/707,723

Examiner

Arnold M. Kinkad

Applicant(s)

GUNAWARDANA, RUVINDA

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01-23-06.
2. ☒ The allowed claim(s) is/are 1-4, 6-13, 15-24, 26, 28-35.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

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1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Victor Segura on Feb. 13, 2006.

The application has been amended as follows:

1. (currently amended) A method for determining a frequency profile of a quartz crystal, comprising:

- a) subjecting the quartz crystal to temperature cycles at various temperature rates;
- b) monitoring the crystal frequencies, a crystal temperature parameter, and the temperature rates as the crystal is subjected to the temperature cycles;
- c) grouping the monitored frequencies correlated with the monitored temperature parameters and temperature rates; and
- d) characterizing the crystal frequency (f) as a function of the monitored temperature parameters and temperature rates according to

$$f = f(T, \dot{T}),$$

where T is a temperature parameter and $\dot{T} = \frac{dT}{dt}$.

10. (currently amended) A method for determining a frequency of a quartz crystal, comprising:

- a) subjecting the quartz crystal to temperature cycles at various temperature rates;

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- b) monitoring the crystal frequencies, a crystal temperature parameter, and the temperature rates as the crystal is subjected to the temperature cycles;
- c) grouping the monitored frequencies correlated with the temperature parameters and temperature rates;
- d) characterizing the crystal frequency (f) as a function of the monitored temperature parameters and temperature rates according to

$$f = f(T, \dot{T}),$$

where T is a temperature parameter and $\dot{T} = \frac{dT}{dt}$;

- e) determining the temperature and a temperature rate of the crystal; and
- f) relating the determined crystal temperature and temperature rate to the characterized frequencies to determine the crystal frequency.

21. (currently amended) A method for determining a frequency of a quartz crystal disposed in a tool adapted for subsurface disposal, comprising:

- a) determining a temperature of the quartz crystal in said tool;
- b) deriving a temperature rate from the determined crystal temperature; and
- c) relating the crystal temperature and temperature rate to a data set characterizing a correlation between ~~the crystal frequency, temperature, and temperature rates to determine the crystal frequency~~ grouped crystal frequencies (f), temperature, and temperature rates to determine the crystal frequency according to

$$\underline{f = f(T, \dot{T})},$$

where T is a temperature parameter and $\dot{T} = \frac{dT}{dt}$.

26. (currently amended) A system for determining the frequency of a quartz crystal, comprising:
 a quartz crystal having a frequency output related to a temperature of the crystal; and
 a processor adapted to calculate a crystal frequency from a measured temperature parameter of the crystal, a temperature rate of the crystal, and observed

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frequencies of the crystal grouped with observed temperature parameters and temperature rates of the crystal;

wherein the processor is adapted to characterize a relationship between the crystal frequency (f) and the observed temperature parameters and temperature rates according to

$$f = f(T, \dot{T}),$$


where T is a temperature parameter and $\dot{T} = \frac{dT}{dt}$.

2. The following is an examiner's statement of reasons for allowance: The examiner could not find fair suggestion in the art for the apparatus and method claimed above in the independent claims for determining the frequency of a quartz crystal and the grouping of the monitored frequencies and temperature parameters and rates of the crystal...in addition to all else claimed. This was based on a review of the after final amendment and review/discussion of the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Arnold Kinkead

Feb. 14, 2006


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